BELOSTOTSKIY, Oleg Borisovich; KANYUKA, Nikolay Sergeyevich;
SHEVCHUK, Boris Mikhaylovich; GOLOVKO, I.N., red.;
POLTORATSKAYA, E.A., red.; REZNICHENKO, I.Ye., red.;
SURYGINA, E.N., red.

[Concise manual for the master builder] Kratkii spravochnik mastera-stroitelia. Kiev, Budivel'nyk, 1964.
774 p. (MIRA 18:1)

KHROMYKH, K.I.; ZINLAND, R.S.; BELOSTOTSKIY, S.L.

Treating suppurative skin diseases by electrophoresis of staphylococcal antiphagin. Vest.ven.i derm. no.4:60-61 Jl-Ag '53. (MLRA 6:9)

1. Leningradskiy kozhno-venerologicheskiy dispanser No.15.
(Skin--Diseases) (Cataphoresis) (Staphylococcus)

L 15368-66 EWT(1)/ETC(m)-6 IJP(c) WW
ACC NR: AP6004487

SOURCE CODE: UR/0048/66/030/001/0167/0174

AUTHOR: Belostotskiy, S.L.; Vorob'yev, A.A.; Seliverstov, D.M.

ORG: none

58
B

TITLE: Use of magnetic focusing in precision flight-time spectrometers for heavy charged particles /Transactions of the Fifteenth Annual Conference on Nuclear Spectroscopy and Nuclear Structure, held at Minsk, 25 January to 2 February, 1965/

21,44,55

SOURCE: AN SSSR. Izvestiya. Seriya fizicheskaya, v.30, no. 1, 1966, 167-174

TOPIC TAGS: electron optics, magnetic quadrupole lens, spectrometer, ion beam, ion beam focusing

ABSTRACT: The authors have used the matrix technique of M.Birk, A.Kerns, and R. Tusting (IEEE Trans., NS-11, 3, 129 (1964)) and A.Sternglass (IEEE Trans., NS-11,3, 87 (1964)) to calculate the characteristics of a flight-time spectrometer employing a double focusing triplet quadrupole magnetic lens. The use of focusing in a flight-time spectrometer greatly increases the solid angle of acceptance but reduces the resolving power, since the focused ions can reach the detector by different paths. The calculations were performed for a specific spectrometer having an 11.4 meter base and the calculated characteristics are compared with experimental values. With an 11.4 meter base and a quadrupole triplet with an aperture of 16 cm it is possible to achieve an energy resolution of 0.015% with an acceptance angle of $6 \times 10^{-5}/4\pi$ sterad.

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ACC NR: AP6004487

By simulteneously increasing the base length and the lens aperture it is possible to increase the resolution while keeping the acceptance angle constant. With a photo-multiplier having a resolving time of 2-3 x 10^{-10} sec as detector and an 11 m base the instrumental half-width of a 5 MeV α-particle line is 3-4 keV, and that of a 5 MeV proton line is 6-8 keV. It is concluded that focused flight-time spectrometers can be usefully employed for precision measurements, particularly with low-energy heavy particles. Orig. art. has: 11 formulas, 9 figures, and 1 table.

SUB CODE: 20 SUBM DATE: 00 ORIG. REF: 000 OTH REF: 003

Card 2/2 vmb

BELOSTOTSKIY, V., nauchnyy sotrudnik

An automobile driver will operate the mining combine. IUn. tekh. 3 no.8:17-19 Ag '59. (MIRA 12:12)

1. Laboratoriya avtomatiki Instituta gornogo dela AN SSSR.
(Coal mining machinery)

BELOSTOTSKIY, V. M.

Cand Tech Sci - (diss) "Control of the position coal-cutting machines relative to the hidden contact of coal and rock." Moscow, 1961. 18 pp; with diagrams; (Ministry of Higher and Secondary Specialist Education RSFSR, Moscow Mining Inst imeni I. V. Stalin); 200 copies; price not given; (KL, 7-61 sup, 232)

SOBOLEVSKIY, Anatoliy Georgiyevich; BELOSTOTSKIY, V.M., red.

[Elements of automatic control systems] Elementy sistem avtomatiki. Moskva, Energiia, 1965. 93 p. (Massovaia radiobiblioteka, no.569) (MIRA 18:3)

APPROVED FOR RELEASE: 06/23/11: CIA-RDP86-00513R000204400016-6

BELOSTOTSKII, V. V.

Induktsiia aerodinamicheskoi truby T-5 TSAGI. Moskva, 1935. 17 p., tables, diagrs. (TSAGI. Trudy, no. 226)

Summary in English.

Title tr.: Interference of the CAHI T-5 wind tunnel.

SO: Aeronautical Sciences and Aviation in the Soviet Union, Library of Congress, 1955.

APPROVED FOR RELEASE: 06/23/11: CIA-RDP86-00513R000204400016-6

BELOSTOTSKIY, Ye. M. | DECEASED '61 | 1962
6

Medicine | see ILC

APPROVED FOR RELEASE: 06/23/11: CIA-RDP86-00513R000204400016-6

BELOSTOTSKIY, Ye.M., doktor med.nauk [deceased]; FRIDMAN, S.Ya., kand. med.nauk

Color instrument for the examination of binocular vision. Uch.zap. GNII glaz.bol. no.7:227-231 '62. (MIRA 16:5)

1. Iz otdeleniya okhrany zreniya detey Gosudarstvennogo nauchno-issledovatel'skogo instituta glaznykh bolezney imeni Gel'mgol'tsa.
(EYE, INSTRUMENTS AND APPARATUS FOR) (BINOCULAR VISION)

L 13288-66 EWT(d)/EWT(m)/EWP(v)/EWP(j)/T/EWP(k)/EWP(h)/EWP(1) RM

ACC NR: AP6000321 (A) SOURCE CODE: UR/0286/65/000/021/0010/0010

INVENTOR: Belotelov, N. A.; Verkhorubov, B. A.; Kal'noy, V. G.; Kryuchkov, A. D.; Litvin, A. P.; Mel'nichenko, V. Z.; Morozov, G. N.; Olerinskiy, B. I.; Klebanova, I. S.; Solnyshkin, L. M.; Fridman, A. N.; Shilov, L. A.; Shchutskiy, S. V.; Yanovskiy, E. A.

ORG: none

TITLE: A device for automatic control of an installation for polymerizing gaseous olefins. Class 12, No. 175923 [announced by the Leningrad Affiliate of the All Union Scientific Research and Design Institute for Chemical Machine Building (Leningradskiy filial Vsesoyuznogo nauchno-issledovatel'skogo i konstruktorskogo instituta khimicheskogo mashinostroyeniya)]

SOURCE: Byulleten' izobreteniy i tovarnykh znakov, no. 21, 1965, 10

TOPIC TAGS: polymerization, olefin, chemical engineering, automatic control equipment

ABSTRACT: This Author's Certificate introduces a device for automatic control of an

Card 1/3 UDC: 66.05-5 : 66.095.26 : 678.742.2

L 13288-66

ACC NR: AP5000321

installation for polymerizing gaseous olefins, e.g. in production of low pressure polyethylene. The unit consists of two temperature controllers connected to a flow regulator for the product reactor, and a pressure regulator connected to the controller for the coolant. For increased productivity and optimization of the process, one temperature controller is connected through a speed reducer to the pressure controller which is connected through a second speed reducer to the flow regulator for the product reactor. The other temperature controller is connected to the flow regulator for the coolant.

L 13288-66

ACC NR: AP6000321

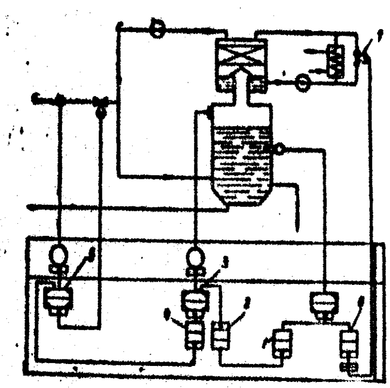

Fig. 1. 1 - first temperature controller; 2 - first speed reducer; 3 - pressure regulator; 4 - second speed reducer; 5 - flow regulator for the product; 6 - second temperature controller; 7 - flow regulator for the coolant.

SUB CODE: 07/ SUBM DATE: 01Feb65/

Card 3/3

BELOTELOV, N.P.

Plasticized cement of the "Kommunar" plant. TSement 20 no.3:28 My-Je '54.
(MLRA 7:7)

1. TSementnyy zavod "Kommunar".
(Cement)

BELOTELOV, P.I.; ALEKSEYEVA, T.D., red.

[Connection of pay telephones in crossbar automatic telephone exchanges] Vkliuchenie telofonov-avtomatov (taksofonov) v koordinatnye ATS; lektsiia po kursu "Telefoniia." Moskva, Redaktsionno-izdatel'skii otdel VZEIS, 1963. 7 p. (MIRA 16:12)
(Telephone)

SOV/49-59-4-13/20

AUTHORS: Belotelov, V. L., Veshnyakov, N. V., Zhilyayev, I. I.

TITLE: A Seismic Energometer (Seysmicheskiy energometr)

PERIODICAL: Izvestiya Akademii nauk SSSR, Seriya geofizicheskaya, 1959, Nr 4, pp 611-616 (USSR)

ABSTRACT: A seismic energometer was designed by A. V. Rykov for the Institute of Physics of the Academy of Sciences USSR. The apparatus is able to record the following kinematic values: 1) the squared velocity v^2 of vibration of the Earth's surface at the point of observation, 2) its time integral, i.e.

$$\int_0^t v^2 dt \quad .$$

The differential equation of motion for this type of apparatus can be defined as Eq (1). If the damping effect is great and $2\varepsilon\dot{y} \gg \ddot{y} + n^2 y$, then this equation can be substituted by Eq (2). In order to obtain the velocity of vibration, the parameters of the apparatus should satisfy the following

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conditions. 1) The period of the pendulum T_o should be equal to the mean period of the seismic waves, i.e.

$$T_o = \sqrt{T_{P\ min}\, T_{P\ max}}\ ,$$

2) The constant of damping D should satisfy the formula

$$D \geqslant \frac{1}{\sqrt{8\delta}} \left(\sqrt{\frac{T_{P\ max}}{T_{P\ min}}} - \sqrt{\frac{T_{P\ min}}{T_{P\ max}}} \right)$$

where δ - error in fraction of unit. Therefore, the main part of the energometer was designed for the following parameters:

SOV/49-59-4-13/20

A Seismic Energometer

T_1 = 10.0 sec., D_1 = 3.68,

T_2 = 6.9 sec., D_2 = 8.61,

K_1 = 229 x 10^4 g cm σ^2 = 0.052,

K_2 = 16.3 x 10^{-2} g cm l_0 = 100 cm,

A = 70 cm

where 1 - pendulum, 2 - galvanometer, K - moment of inertia, σ^2 - coupling coefficient, l_0 - length, A - optical section. In this case the deflection of the indicator is $y = \eta\dot{\bar{x}}(t)$, where η = 140. The interval of the velocity v is 3-26 sec (Fig 1) with an error of 6% (dotted line in Fig 1). The value of v is transformed into v^2 by means of a mask with a parabolic opening (Fig 3). It is denoted by 3 in

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the general layout of the apparatus shown in Fig 2. Its other components are: lighting and optical systems - 1-4 and 11, galvanometer with a mirror - 5, a photographic camera - 6-9, with an automatic control - 10. The image of the vibration (transferred from a seismograph attached to the galvanometer - 5) as photographed on the film is shown in Fig 4. If the abscissa of the masking parabola is y and the ordinate is z, then $z = ky^2$. In this case $k = 1.25$ and $z = k\eta^2 x^2$. Since z is reduced N times on the film (p1)

$$\overline{x^2} = \frac{z_{\mu} N}{k\eta^2} = \gamma z_{\mu}$$

The value of γ of the apparatus is equal to 8×10^{-5} (in CGS system). The electric circuits of the apparatus are shown in Fig 5 and the separate unit which integrates the expression:

SOV/49-59-4-13/20

A Seismic Energometer

$$\vartheta = \rho c \int_0^t (\dot{u}^2 + \dot{v}^2 + \dot{w}^2) dt \ \text{erg/cm}^2$$

is shown in Fig 6. The integration is done by determining the dark area on the film (4 in Fig 6) by means of the lamp - 1, condenser - 2, and the slit - 3. The film is set in motion by means of the motor - 5. The light, through the objective - 6, falls on the photocell - 7, generating the current which is proportional to the value $\int_0^t v^2 dt$. As an example, the results of an earthquake in the Philippines on September 24, 1957, are given, as measured by means of this apparatus:

$$v^2 = 12.2 \times 10^{-6} \ \text{cm}^2/\text{sec}^2$$

$$\int_0^t v^2 dt = 2.2 \times 10^{-4} \ \text{cm}^2/\text{sec}$$

These values, as obtained from the seismogram SVK, are as

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SOV/49-59-4-13/20

A Seismic Energometer

follows:

$$v^2 = 29.4 \times 10^{-6}\ cm^2/sec^2, \quad \int_0^t v^2 dt = 53 \times 10^{-4}\ cm^2/sec$$

The difference was due to the smoothing effect of the curve on the seismogram. There are 6 figures and 9 references, of which 7 are Soviet and 2 are English.

ASSOCIATION: Moskovskiy gosudarstvennyy universitet im. M. V. Lomonosova (Moscow State University imeni M. V. Lomonosov)

SUBMITTED: January 28, 1958.

Card 6/6

APPROVED FOR RELEASE: 06/23/11: CIA-RDP86-00513R000204400016-6

BELOTELOV, V.L.; ZHILYAYEV, I.I.

Strong tremor signal . Vest Mosk. un. Ser. mat., mekh., astron. fiz., khim. 14 no.2:235-237 '59 (MIRA 13:3)

1. Kafedra fiziki zemnoy kory Moskovskogo gosuniversiteta. (Seismology--Equipment and supplies)

22(1) SOV/3-59-5-26/34

AUTHOR: Belotelov, V.L., and Rykunov, L.N.

TITLE: This was Made in a Vuz. A Device for Demonstrating Seismic Phenomena on Models

PERIODICAL: Vestnik vysshey shkoly, 1959, Nr 5, pp 81 - 82 (USSR)

ABSTRACT: One of the quickly developing methods of examining seismic processes is to study them on small models of realistic mediums with the help of ultrasound. In the USSR this method was first applied at the Institut fiziki Zemli AN SSSR (Institute of Physics of the Earth, AS USSR). In 1953, under the direction of Professor Yu.V. Riznichenko a special device - an impulse ultrasonic seismoscope - was made which is rather complicated in make and use. In a number of cases it can be simplified without harm to the observation of the studied processes and accuracy of measuring, since it is important not to compli-

Card 1/4

SOV/3-59-5-26/34

This was Made in a Vuz. A Device for Demonstrating Seismic Phenomena on Models.

cate the students' understanding of the physical aspect of the studied phenomenon. This was the aim of the Chair of Physics of the Earth Crust, Moscow University, in making a simplified device to demonstrate seismic phenomena. It consists of a blocking generator, Seignette's salt feelers, an additional amplifier, electron oscillograph EO-6, model of the studied medium or of the specimen under examination. The blocking generator (diagram 2) works within an auto-oscillating system and generates negative polarity impulses of 1.5 microsecond duration and 150 hertz sequence frequency. The feelers represent Seignette's salt crystals of 45^{0}-X section and 20x20x20 mm in size; own frequency - 50 kilohertz. The castor oil-covered crystals are in glass containers. The feelers are protected by screens from outer electrical fields. The

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SOV/3-59-5-26/34

This was Made in a Vuz. A Device for Demonstrating Seismic Phenomena on Models.

additional amplifier (diagram 3) increases the amplification factor of the device's receiving channel. The work details of oscillograph EO-6 (or EO-6M, SI-1, etc.) are as follows: slave sweep (250 microseconds), synchronization is external, starting - negative. The device operates as follows: The blocking generator furnishes electric impulses to the salt crystals covering as they start the slave sweep of the oscillograph. Excited by the electric impulse, the piezocrystal makes several resilient oscillations by its own ultrasonic frequency. These oscillations, passing through the model, fall upon a like piezocrystal serving as a receiver. From there the oscillations, again transduced from mechanical into electrical, get on the amplifier and, having been magnified, reach the oscillograph's input. The

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SOV/3-59-5-[illegible]/34

This was Made in a Vuz. A Device for Demonstrating Seismic Phenomena on Models.

device can also be used for solving acoustic problems. connected, e.g., with measuring the speed of sound in various materials and determining the modulus of elasticity, absorption coefficient, etc. There are 3 diagrams.

ASSOCIATION: Moskovskiy gosudarstvennyy universitet imeni M.V. Lomonosova (Moscow State University imeni M.V. Lomonosov).

Card 4/4

APPROVED FOR RELEASE: 06/23/11: CIA-RDP86-00513R000204400016-6

AUTHOR: Belotelov, V.L. (Moscow)

TITLE: Apparatus for Determining the Energy of ... Waves from Seismograms

PERIODICAL: Izvestiya Akademii nauk SSSR ... nauk, Mekhanika i mashinostroyeniye, 1960, Nr ..., pp 140-142 (USSR)

ABSTRACT: The apparatus described is based on the equation of the kinetic energy of elastic vibrations

$$e_1 = \frac{1}{2} \rho c \int_0^{t_0} \left(\frac{dA}{dt}\right)^2 dt \qquad (1)$$

where: ρ - density of the rock; ... wave; t_0 - duration of earthquake; A - amplitude. Assuming that the potential energy e_2 is equal to e_1, the total energy e can be defined as Eq (2). Thus, if A' = bA, e and J(t0) (Eq ...) can be defined for the longitudinal and transverse waves. The apparatus was designed to determine semi-automatically the magnitude of the integral J(t0). Its ... diagram is shown in Fig 1, where: 1 - ...

Card 1/2

[illegible]

Apparatus for Determining the Energy [illegible] Seismograms

3 - counter. The results [illegible] are illustrated in Fig 3 [illegible] J(t) related to an actual [illegible]. There are 3 figures and 3 Soviet [illegible].

ASSOCIATION: Moskovskiy gosudarstvennyy [illegible] Fizicheskiy fakul[illegible] (Moscow State University, Ph[illegible] Faculty)

SUBMITTED: August 19, 1959

Card 2/2

BELOTELOV, V.L.; SAVARENSKIY, Ye.F.; FEOFILAKTOV, V.D.

Determining the energy of the earthquake of Nov. 15, 1959. Izv. AN SSSR. Ser.geofiz. no.11:1593-1597 N'60. (MIRA 13:11)

1. Moskovskiy gosudarstvennyy universitet im. M.V.Lomonosova. (Seismometry)

9.9865
3.9300

26982 S/049/60/000/012/006/011
D214/D305

AUTHORS: Belotelov, V.L., and Kondorskaya, N.V.

TITLE: On the question of calculating the energy of earthquakes

PERIODICAL: Akademiya nauk SSSR. Izvestiya. Seriya geofizicheskaya, no. 12, 1960, 1744 - 1755

TEXT: This study of the energy of longitudinal and transverse waves of some Far Eastern earthquakes which occurred between 1952 and 1957 is a continuation of previous work by Ye.F. Savarenskiy etal (Ref. 1: Izv. Akad. Nauk SSSR, ser. geofiz., no. 5, 1960) on a method of determining the energy of elastic waves from the deep earthquake of January 3, 1957. Observational procedure and factors affecting the interpretation of the experimental data. The research materials consisted of 108 seismograms selected from the records of 11 strong earthquakes with epicenters off Kamchatka, the Kuriles and the east coast of Japan. Values for the coefficients of P- and S-wave absorption and for the coefficient of the vertical components

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APPROVED FOR RELEASE: 06/23/11: CIA-RDP86-00513R000204400016-6

of the P- and S-waves were taken from the data of B. Gutenberg and D.S. Kogan (Ref. 7: Tr. geofiz. inst. Akad. Nauk SSSR, no. 30, 157, 1955). The P- and S-wave energies were evaluated from the formulae

$$\overline{\text{Э}} = \frac{4\pi R^2 \sin\theta \sin e_0}{f(e,\alpha)\cos e\,\frac{de}{d\theta}}\left(\frac{\text{Э}_0}{\rho c}\right)\rho c,$$

$$\overline{\text{Э}} = \text{Э} e^{-k\theta};\quad \text{Э}_0 = \rho c\int_0^{\tau}\left[\frac{\left(\frac{dA_N}{dt}\right)^2 + \left(\frac{dA_E}{dt}\right)^2}{K_H^2} + \frac{\left(\frac{dA_Z}{dt}\right)^2}{K_Z^2}\right]dt, \qquad (1)$$

where θ is the epicentral distance; e_0 is the angle of emergence of the seismic ray at the surface; e is the angle of emergence of the seismic ray from the focus; k is the absorption coefficient; s is the propagational velocity of the incident wave near the surface; p is the rock density near the seismic stations; Э_0 is the density of the vibrational energy in the incident wave at the observation point; A_N, A_E, A_Z are the components of the actual ground displacement at the surface at the observation point; K_H, K_Z are the reflection coefficients at the free discontinuity-surface for the horizontal and vertical components; and $f(e - \alpha)$ is the function covering the effect of uneven energy radiation from the focus in different directions. The mean magnitude of the energy of a given earthquake ($Э_{cp}$) was obtained at various stations ($\bar{Э}$) by taking into account the mean value of the absorption coefficient:

$$_{cp} = \sqrt[n]{Э_1 \cdot Э_2 \ldots Э_n} = \sqrt[n]{\bar{Э}_1 \cdot \bar{Э}_2 \ldots \bar{Э}_n \, e^{k_{cp}(\theta_1+\theta_2+\ldots+\theta_n)}},$$

$$\lg Э_{cp} = \frac{1}{n}\left(\sum_{i=1}^{n} \lg Э_i + k_{cp} \lg e \sum_{i=1}^{n} \theta_i\right). \quad (2)$$

The divergence function $\sin\theta \sin e_0/\cos e(de/d\theta)$ was calculated

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On the question of calculating ... S/049/60/000/012/006/011
D214/D305

from H. Hodgson's tables; previous research by authors indicates that $f(e, \alpha)$ approximates to unity. V.L. Belotelov's special device (Ref. 2: Izv. Akad. Nauk SSSR, otdel. tekh. nauk., no. 6, 1959) was employed to determine $\ni_0$ from integrals like

$$\int_0^{\tau} \left(\frac{dA_i}{dt}\right)^2 dt.$$

The authors stress the need for taking the frequency spectra of seismic waves into account when calculating the focal energy of earthquakes. They also note the good agreement between their values for log $\ni$ and those found for M from the procedure given by B. Gutenberg et al and S.L. Solov'yev (Ref. 10: Izv. Akad. Nauk SSSR, ser. geofiz., no. 7, 1957). On the discussion of results, the values of $\ni_p$ and $\ni_s$ for the studied earthquakes are generally similar, but data from observations with $\theta > 20°$ do not enable any conclusion to be drawn regarding the possibility of the greater ener-

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APPROVED FOR RELEASE: 06/23/11: CIA-RDP86-00513R000204400016-6

gy of transverse waves as compared with longitudinal waves. The variation of the individual values for log $\mathfrak{Э}_p$ and log $\mathfrak{Э}_s$ may be related to certain patterns in the deviations of these values from the average magnitude determined for each area as a whole. In the author's opinion such deviations should be considered as corrections which have to be applied when determining $\mathfrak{Э}$ from measurements at separate stations. They are probably due to peculiarities in the geologic structure near each seismic station. With regard to the dependence of log $\mathfrak{Э}$ on the epicentral distance the following regularities were observed: 1) log $\mathfrak{Э}$ is at a maximum for epicentral distances of 44° -- a fact established by N.V. Kondorskaya (Ref. 13: Stud. geophys. et geodaet., 3, 1959) during the earthquake of 3·1·1957 -- 57° and 78°; 2) The general tendency for log $\mathfrak{Э}$ to increase with the epicentral distance, especially in the case of P-waves; and 3) The values of log $\mathfrak{Э}$ are lower at epicentral distances of $<25°$. The authors believe these trends to be due respectively to the focusing of seismic rays within layers which condition discontinuity surfaces of the second type, to the decrease of the absorption coeffi-

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On the question of calculating ... S/049/60/000/012/006/011
D214/D305

cient of the earth's shell with depth, and to the fact that the Petropavlovsk station -- which, according to S.Ya. Kogan (Ref. 15: Izv. Akad. Nauk SSSR. ser. geofiz., no. 9, 1959), usually gives reduced values -- was used in the case of small epicentral distances. The foregoing method is considered to be suitable for measuring the elastic-wave energy of earthquakes by means of observations at remote stations. The authors, however, recommend the use of an even greater number of stations to obtain more precise values of log $\bar{\partial}$. The reliability of the method would also be improved by additional information on the vibration groups of P- and S-waves, the corrections required in the energy calculations, a simpler means of determining the form of f(e, α) and on the spectral composition at the boundary of the focal sphere. There are 5 figures, 4 tables and 15 references: 10 Soviet-bloc and 5 non-Soviet-bloc. The references to the English-language publications read as follows: B. Gutenberg, Bull. Seism. Soc. Amer. 34, no. 2, 1944; B. Gutenberg, Ibid 35, no. 2, 1945; H. Hodgson, Ibid 43, no. 1, 1953; M. Bath, Trans. Amer. Geophys. Union 36, 1955.

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On the question of calculating ... 26982 S/049/60/000/012/006/011
D214/D305

ASSOCIATION: Akademiya nauk SSSR, Institute fiziki zemli, Moskovskiy gosudarstvennyy universitet im. M.V. Lomonosova (Institute of Physics of the Earth, Moscow State University im. M.V. Lomonosov, Academy of Sciences, USSR)

SUBMITTED: May 5, 1960

Card 7/7

BELOTELOV, V. L.

Cand Phys-Math Sci - (diss) "Determination of the energy of earth temblors from records of remote seismic stations." Moscow, 1961. 10 pp; (Academy of Sciences USSR, Inst of Earth Physics imeni O. Yu. Zhmidt, Moscow Order of Lenin and Order of Labor Red Banner State Univ imeni M. V. Lomonosov, Physics Faculty); 150 copies; price not given; (KL, 6-61 sup, 192)

23458

3,9300

S/049/61/000/001/003/008
D026/D306

AUTHORS: Belotelov, V.L., Kondorskaya, N.V.

TITLE: On the relation between earthquake energy and the maximum displacement velocity in body waves

PERIODICAL: Akademiya nauk SSSR. Seriya geofizicheskaya. Izvestiya, no. 1, 1961, 38 - 45

TEXT: This article appears to be the third of a series of papers devoted to this topic, based on an extension of the method of B.B. Galitsin (Ref. 1: Ye.F. Savarenskiy, N.V. Kondorskaya, V.L. Belotelov, Ob opredelenii energii uprugikh voln, porozhdayemykh zemletryaseniyem. Izv. AN SSSR, ser. geofiz., No. 5, 1960). The end-product of the paper is a set of relations between $Э_P$ or $Э_S$, the mean energy of all the P-wave, S-wave respectively, radiation from an earthquake, Θ - the epicentral distance and $(A/T)_{PZ}$, $(A/T)_{PH}$, $(A/T)_{SZ}$, $(A/T)_{SH}$ - the quantities read from the seismograms where

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23458

On the relation between ... S/049/61/000/001/003/008
D226/D306

A is the amplitude (of the actual earth's surface displacement). T is the period and P, S, 24H have their usual significance. (A/T) is supposed to be read at its maximum value. These relations are:

Deep Earthquakes

$$\lg \bar{Э}_P = 22{,}75 + 0{,}018\,\theta^\circ + \lg\left(\frac{A}{T}\right)_{PZ}$$
$$\lg \bar{Э}_P = 23{,}0 + 0{,}018\,\theta^\circ + \lg\left(\frac{A}{T}\right)_{PH}$$
$$\lg \bar{Э}_S = 23{,}3 + 0{,}02\,\theta^\circ + \lg\left(\frac{A}{T}\right)_{SZ}$$
$$\lg \bar{Э}_S = 23{,}0 + 0{,}02\,\theta^\circ + \lg\left(\frac{A}{T}\right)_{SH}$$

Superficial Earthquakes

$$\lg \bar{Э}_P = 23{,}05 + 0{,}025\,\theta^\circ + \lg\left(\frac{A}{T}\right)_{PZ}$$
$$\lg \bar{Э}_P = 23{,}35 + 0{,}025\,\theta^\circ + \lg\left(\frac{A}{T}\right)_{PH}$$
$$\lg \bar{Э}_S = 23{,}45 + 0{,}025\,\theta^\circ + \lg\left(\frac{A}{T}\right)_{SZ}$$
$$\lg \bar{Э}_S = 23{,}45 + 0{,}02\,\theta^\circ + \lg\left(\frac{A}{T}\right)_{SH}$$

The analysis is based on 132 records of eleven earthquakes. Some causes of the lower average result for deep earthquakes are discussed. 1) The traces from deep earthquakes often consist of one large energetic pulse, whereas those from superficial earthquakes are spread over many oscillations. 2) A factor in the equations de-

Card 2/4

23458

On the relation between ...

S/049/61/000/001/003/008
D226/D306

pending on the angle of incidence is more critical for a shallow focus. 3) Integration from a superficial focus is only over a hemisphere, not a sphere, so one would expect lg Э to be 0.3 less for surface earthquakes. 4) At small Θ the difference in the reflexion coefficients at the surface becomes important, and many more observations are needed at each station to determine them in the range 0.1 to 0.5 Hz. There are 3 figures, 2 tables and 8 references: 3 Soviet-bloc and 5 non-Soviet-bloc. The references to the English-language publications read as follows: B. Gutenberg, C.F. Richter, Magnitude and energy of earthquakes, Ann. Geophys. Roma 9, No. 1, 1956; B. Gutenberg, Amplitudes of P, PP and S and magnitude of shallow earthquakes. Bull. Seism. Soc. Ameri., 35, No. 2, 1945; B. Gutenberg, Magnitude determination for deep focus earthquakes. Bull. Seism. Soc. Amer. 35, no. 3, 1945; B. Gutenberg, The energy of earthquakes. J. Geol. Soc. London, No. 8, 1956.

Card 3/4

23458

On the relation between ...

S/049/61/000/001/003/008
D226/D306

ASSOCIATION: Akademiya nauk SSR, Institut fiziki zemli Moskovskiy gosudarstvennyy universitet im M.V. Lomonosova (Academy of Sciences USSR, Institute of Physics of the Earth, Moscow State University im M.V. Lomonosov)

SUBMITTED: July 6, 1960

Card 4/4

20597
Z/023/61/005/004/002/003
D006/D102

3.9300 (1019, 1109)

AUTHORS: Belotelov, V.L., Zhilyaev, I.I., Veshnyakov, N.V., and Feofilaktov, V.D.

TITLE: Seismic energy meter

PERIODICAL: Studia geophysica et geodaetica, no. 4, 1961, 361-363

TEXT: The paper presents some results of the authors' studies on the measurement of the seismic-wave energy. Assuming that both the kinetic and potential energies are equal, they found that the density of this energy, as well as the seismic energy passing through the observation point, can be determined by the following formulas:

$$\rho v^2, \text{ and accordingly } \rho c \int_0^{\tau} v^2 \, dt ,$$

where ρ is the density of the medium, v the velocity of oscillations of an incident wave, c the velocity of energy propagation, and τ the duration of

Card 1/4

28597

Seismic energy meter

Z/023/61/000/004/002/003
D006/D102

oscillations [Abstracter's note: t not explained.] The authors designed a recording seismic energy meter which permits the recording of the square of v and makes possible the determination of $\bar{v}^2 \int dt$. The energy meter consists of a velocity meter and a function converter. The purpose of the function converter is to convert $\bar{v}$ into $\bar{v}^2$ or into some other convenient function, e.g. log $\bar{v}$. A schematic diagram of the instrument is shown in Fig. 1. A lamp base with a projection lamp (1), a condenser (2), a mask (3) and a projection lens (4) are assembled in the tube of the light source. The light from the source is reflected by the mirror of the galvanometer (5) and reaches the slit (6) of the receiving unit. A film (7) is just behind the slit. For squaring $\bar{v}$ the mask has the form of two similar parabolas with a common apex. When the galvanometer is not in action, the parabolas' reflection is disposed symmetrically to the slit and the latter is in full light. When the galvanometer oscillates, a part of the slit is obscured. The ordinates Z of the obscured part of the slit are proportional to the square of the y-axis. The film is moved by tape-moving mechanism. When the galvanometer oscillates, the obscured part of the mask reflection more or less covers the middle part of the slit. As a result of this a strip of light of variable width

Card 2/4

Seismic energy meter

28597 S/023/61/000/004/002/003
D006/D102

appears on the film after it has been developed. When the mask has the form of a parabola, the width of this strip is proportional to $\bar{v}$. When it has the form of a logarithm, the width of the strip is proportional to log $\bar{v}$. The area of the light strip is determined by means of a planimeter. A method of processing the obtained data is given for the surface waves yielding the equation

$$v^2\,dt = \bar{v}_N{}^2dt + \bar{v}_E{}^2dt + \bar{v}_Z{}^2dt$$

where N, E, Z are indices of the displacement components on the free surface. There are 3 figures, 1 table and 5 references: 4 Soviet-bloc and 1 non-Soviet-bloc. The reference to the English-language publication reads as follows: H. Jeffreys, The Pamir earthquake of 1911 February 18, in relation to the depths of earthquake foci. MNRAS, Geoph. Suppl., v. 1, no 2, 1923. (Technical Editor: V. Tobyas)

ASSOCIATION: Physics Department, Moscow State University, Moscow

SUBMITTED: December 7, 1960

Card 3/4

3.9300
9.9865

29503
S/049/60/000/011/004/012
D247/D305

AUTHORS: Belotelov, V. L., Savarenskiy, Ye. F., and Feofilaktov, V. D.

TITLE: Determining the energy of the earthquake of November 15, 1959

PERIODICAL: Akademiya nauk SSSR. Izvestiya. Seriya geofizcheskaya, no. 11, 1960, 1593-1597

TEXT: An important earthquake occurred on November 15, 1959 in Greece. The seismic stations in the USSR registered this earthquake by means of several different recording equipments, namely, by the systems of Golitsyin, Kirnos, M.G.U. and normal equipment for determining the energy of elastic waves. The presence of records from different equipment made it possible to compare the results of different methods applied today in seismology. The energy waves (longitudinal and transversal) was calculated according to the method of B. B. Golitsyn (Ref. 3: O zemletryaseniy 18-go fevralya 1911 goda (On the Earthquake of February 18, 1911) Izv. Rossiyskov Akademii nauk, 9, 1915). This method was later improved by X

Card 1/5

29503
S/049/60/000/011/004/012
D247/D305

Determining the energy...

other authors.

$$E = 2\pi R^2 \rho V \frac{\sin \Delta \operatorname{tg} e}{\frac{de}{d\Delta}} e^{k\Delta} \int_0^{\tau} v^2 dt \qquad (1)$$

was used, where R-radius of the earth, ρ --rock density, V--velocity of the propagation of elastic waves, e--angle of emergence, Δ --epicentric distance, k--coefficient of attenuation, τ --the duration of earthquake, v--momentary speed of vibration of incident wave. Following values were accepted: ρ --2.7 gr/cm^3 , V_p--6.2 km/sec. , V_S--3.6 km/sec. , R--6370 km , Δ --22^0 , $\sin \Delta \operatorname{tg} e / \frac{de}{d\Delta}$ --0.36. The results obtained by different equipment are given in a table.

Card 2/5

29503
S/049/60/000/011/004/012
D247/D305

Determining the energy...

Значения $10^4 \cdot J = \int_0^{\tau} v^2 dt \cdot 10^4$ в системе CGS с учетом коэффициента увеличения и частотной характеристики приборов

a) Приборы Голицына, ст. «Москва»			b) Приборы Кирноса, ст. «Москва»			c) Приборы Кирноса, ст. МГУ			d) Энергомер МГУ			
N	Z	E	H_1	Z	H_2	Z	E	N	Z	E	N	
0,26	0,39	0,23	0,1	0,78	0,79 0,82*	1,25 1,35*	0,42	0,91	1,6	1,0	2,1	P_{min}
									3,4	4,9	8,3	P_{max}
0,62	0,25	1,22	0,46	0,45 0,5*	2,13	0,82	1,8	1,5	1,0	3,6	3,8	S_{min}
									4,2	12,4	12,4	S_{max}

Legend to table: The values of $10^4 \cdot J = \int_0^{\tau} v^2 dt \cdot 10^4$ in the system CGS with due regard for the coefficient of amplification and frequency characteristic of equipment. (a) Golitsyn equipment, Moscow Station; (b) Kirnos equipment, Moscow Station; (c) Kirnos equipment, MGU Station; (d) Energy meter, MGU

Card 3/5

There are 4 types of equipment--Golitsyn, Moscow Station; Kirnos, Moscow Station; Kirnos, M.G.U. Station; energy-meter of M.G.U. The results of calculations of the value J by different equipments and components were in agreement. The energy of incident waves was in erg/cm^2 for: P_{min}--170, P_{max}--600, S_{min}--190, S_{max}--670. For calculating the energy of the surface waves

$$E = 2\pi\rho R \sin\Delta \int_0^{\tau} v^2 HVdt \cdot e^{k\Delta} \qquad (3)$$

X

was used, resulting in a value of E = 15800 erg/cm^2. An attempt was made to determine the value of the energy in the focus of the earthquake. Eqs. (1) and (3) were used with Magnitude = 6.8 . [Abstractor's note: Author gives no explanation for divergence of results]. There are three figures, 1 table and 8 references: 6 Soviet-bloc and 2 non-Soviet-bloc. The references to the English-language publications read as follows: H. Jeffreys, The Pamir earthquake of 1911, February 18, in relation to

APPROVED FOR RELEASE: 06/23/11: CIA-RDP86-00513R000204400016-6

29503
S/049/60/000/011/004/012
D247/D305

Determining the energy...

the depths of earthquake foci, Month. Not. Royal Acad. Sci. Geophys. Suppl., 1, no. 2, (1923); J. D. Noyer, Determination of the energy in body and surface waves. (II), Bull. Seism. Amer., 49, No. 1, (1959).

ASSOCIATION: Moskovskiy gosudarstvennyy universitet im. M. V. Lomonosova (Moscow State University im. M. V. Lomonosov)

SUBMITTED: December 22, 1959

X

Card 5/5

S/049/63/000/003/002/005
D218/D307

AUTHORS: Belotelov, V. L., and Rykunov, L. N.

TITLE: A digital converter for seismograms

PERIODICAL: Akademiya nauk SSSR. Izvestiya. Seriya geofizicheskaya, no. 3, 1963, 473-475

TEXT: A semi-automatic device is described for the conversion of recorded seismograms into digital form. The seismogram is placed on a motor driven drum and is traced out by means of a special lever whose position is automatically converted to digital form at equal time intervals. The device is suitable for other types of graphical material. There are 3 tables.

ASSOCIATION: Moskovskiy gosudarstvennyy universitet im. M. V. Lomonosova (Moscow State University im. M. V. Lomonosov)

SUBMITTED: June 19, 1962

Card 1/1

BELOTELOV, V. L.; KONDORSKAYA, N. V.

Spectra of body waves in Kamchatka earthquakes. Izv. AN SSSR. Ser.geofiz. no. 4:475-482 Ap '64. (MIRA 17:5)

1. Institut fiziki Zemli AN SSSR i Moskovskiy gosudarstvennyy universitet.

BELOTELOVA, M.V.

Organization of work in automatic telephone exchanges without night shifts. Vest. sviazi 22 no.1:23-24 Ja '62.

(MIRA 14:12)

1. Nachal'nik otdela Avtomaticheskoy telefonnoy stantsii Glavnogo upravleniya gorodskoy telefonnoy seti Ministerstva svyazi RSFSR.

(Telephone, Automatic)

APPROVED FOR RELEASE: 06/23/11: CIA-RDP86-00513R000204400016-6

KALININA, Vera Petrovna; KOZLOV, Dmitriy Petrovich; BELOTELOVA, M.V., otv. red.; KOKOSOV, L.V., red.; MARKOCH, K.G., tekhn. red.

[Electrician of municipal telephone exchanges] Monter gorodskikh telefonnykh stantsii. Moskva, Sviaz'izdat, 1962. 205 p. (MIRA 15:11)

(Telephone--Handbooks, manuals, etc.)

APPROVED FOR RELEASE: 06/23/11: CIA-RDP86-00513R000204400016-6

L 9484-66

ACCESSION NR: AR4042223 S/0124/64/000/006/A020/A020

SOURCE: Ref. zh. Mekhanika, Abs. 6A115

6
B

AUTHOR: Bolotin, V. V.

TITLE: Stationary distributions of probabilities in the statistical dynamics of elastic systems

CITED SOURCE: Sb. Vopr. dinamiki i prochnosti. Vy*p. 10. Riga, AN LatvSSR, 1963, 57-67

26

TOPIC TAGS: probability, elastic system, statistical dynamics, elastic system statistical dynamics

TRANSLATION: A description of the solution of the Fokker-Planck equation for elastic systems, under the action of random δ-correlated perturbations. It considers both a system with finite number of degrees of freedom, and also a system approximately reduced to such a means of introduction of expansions

Card 1/2

L 9484-66

ACCESSION NR: AR4042223

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with respect to a finite number of forms of free oscillations. It is shown that Maxwell-Boltzmann distribution can be a stationary solution of the Fokker-Planck equation only under very limited conditions imposed on parameters of system and properties of perturbations.

SUB CODE: MA ENCL: 00

Card 2/2

BOLOTIN, V.V.

PHASE I TREASURE ISLAND BIBLIOGRAPHICAL REPORT AID 541 - I

BOOK Call No.: AF620011

Author: BOLOTIN, V. V.

Full Title: TRANSVERSE VIBRATIONS OF BARS ORIGINATED BY PERIODIC LONGITUDINAL FORCES [See: Orig. Agency and Purpose]

Transliterated Title: O poperechnykh kolebaniyakh sterzhney, vyzyvayemykh periodicheskimi podol'nymi silami

PUBLISHING DATA

Originating Agency: Academy of Sciences, USSR. Institute of Machine Design. Poperechnyye kolebaniya i kriticheskiye skorosti (Transverse Vibrations and Critical Speeds). First Collection

Publishing House: Academy of Sciences, USSR

Date: 1951 No. pp.: 32 (46-77) No. of copies: 3,000

Editorial Staff

Responsible Editor: Serensen, S. V., Active Member, Academy of Sciences, Ukrainian S.S.R.

PURPOSE: This work is one of the seven (AID 540 - 546) which were discussed in a seminar on vibrations in the Institute of Machine Design, and is reprinted for its practical interest.

TEXT DATA

Coverage: The solution of the problem defined in the title has a practical application for the vibration computation of connecting

APPROVED FOR RELEASE: 06/23/11: CIA-RDP86-00513R000204400016-6

rods and piston rods in high speed engines. The differential equations allowing for non-linear damping are based on Lyapunov's theorem, and on the non-linear factor of Goldenblat, N. M. Krylov and Bogolyubov with the application of Galërkin's method. The determination of amplitudes of sustained vibrations in the principal domain of dynamic instability, which is practically the most dangerous, is made by solving non-linear differential equations by approximation only. The theoretical presentations of the article have been checked by experiments in the Laboratory of Construction Mechanics of the Moscow Engineers' Institute of Railroad Transportation and results are given in diagrams and on photoplates.

No. of References: Total 12, 1924-1948, 11 Russian, 1 translated into Russian

Facilities: Moscow Engineers' Institute of Railroad Transportation

BOLOTIN, V.V.

PHASE I TREASURE ISLAND BIBLIOGRAPHICAL REPORT AID 530 - I

BOOK

Author: BOLOTIN, V. V., Kand. of Tech. Sci.
Full Title: JOINT STRESS OF ARCHES WITH SUPERSTRUCTURE
Transliterated Title: O sovmestnoy rabote arok s nadarochnym stroyeniyem

PUBLISHING DATA

Originating Agency: Moscow Institute of Railroad Transport Engineers im. Stalin (MIIT), Trudy, Issue 76, Construction Mechanics
Publishing House: State Publishing House of Railroad Transport
Date: 1952 No. pp.: 10 (32-41) No. of copies: 1,000
Editorial Staff
Editor-in-Chief: Litvin, G. A., Kand. of Tech. Sci.
Editors: Profs., Doc. of Tech. Sci. Prokof'yev, I. P., Pratusevich, Ya. A., and Sinel'nikov, V. V.
Others: The preface was written by Gerasimov, A. S., Chief of MIIT, General Director of Traffic III Rank

PURPOSE: **A paper intended** for engineering-technical and scientific workers of railroad transport.

TEXT DATA

Coverage: The author analyses stresses in arches with superstructures, in particular flexible arches with rigid beams, and proposes formulae

APPROVED FOR RELEASE: 06/23/11: CIA-RDP86-00513R000204400016-6

for the calculation of these stresses. As it is impossible to establish the required analytical formulae by a general statical calculation, and to give a descriptive representation of the character of the distribution of bending moments between the arch and the beam when a multiple relationship of rigidity exists, the author suggests approximate formulae which make possible the quick evaluation of the magnitude of the stresses in girders of the superstructure. Diagrams, formulae.

No. of References: None

Facilities: None

BOLOTIN, V.V.

PHASE I TREASURE ISLAND BIBLIOGRAPHICAL REPORT AID 534 - I

BOOK Call No.: AF603914

Author: BOLOTIN, V. V., Kand. of Tech. Sci.

Full Title: CALCULATION OF THE DYNAMIC FORCES OF RAILROAD BRIDGES BY TAKING INTO ACCOUNT THE MASS OF MOVEABLE LOAD

Transliterated Title: O dinamicheskom raschete zheleznodorzhnykh mostov s uchetom massy podvizhnoy nagruzki

PUBLISHING DATA

Originating Agency: Moscow Institute of Railroad Transport Engineers im. Stalin (MIIT), Trudy, Issue 76, Construction Mechanics

Publishing House: State Publishing House of Railroad Transport

Date: 1952 No. pp.: 21 (87-107) No. of copies: 1,000

Editorial Staff

Editor-in-Chief: Litvin, G. A., Kand. of Tech. Sci.

Editors: Profs., Doc. of Tech. Sci. Prokof'yev, I. P., Pratusevich, Ya. A., and Sinel'nikov, V. V.

Others: The preface was written by Gerasimov, A. S., Chief of MIIT, General Director of Traffic III Rank

PURPOSE: A paper intended for engineering-technical and scientific workers of railroad transport.

TEXT DATA

Coverage: In this article the author considers the problem of vibra-

O dinamicheskom raschete zheleznodorzhnykh mostov s uchetom massy podvizhnoy nagruzki

AID 534 - I

tion of a beam of a span-structure under the action of a moveable, uniformly distributed load of infinite length, taking into account its mass. He divides his article as follows: 1. Deduction of differential equations of vibrations of a span construction, taking into account the mass of the moveable load; 2. Vibrations of a double-track bridge; 3. Stability of free vibrations of a one-track bridge; 4. Critical frequencies of a one-track bridge; 5. Dynamical deflection of one-track bridge.

No. of References: Russian 6, dated 1930-1950.

Facilities: Names of several Russian scientists working in the field of dynamics of railroad bridges appear in the text.

BOLOTIN, V. V.

USSR/Physics - Oscillations, Parametric Excited — 1 Apr 52

"Parametrically Excited Oscillations of Elastic Arcs," V. V. Bolotin

"Dok Ak Nauk SSSR" Vol 83, No 4, pp 537-540

Considers a sym arc which is loaded by a symmetric vibrational load, and examines the cases of forced and parametrical excited oscillations. During one of the expts, an arc was caused to collapse; here the amplitude of the external force did not exceed 10% of the static crit value. A load is called parametric if it enters as a parameter in the left side of eqs of excitation equil (motion). Writes the differential eq for the flexure in a circular rod of const cross section and obtains an approx soln for amplitude and frequency. Submitted 9 Feb 52 by Acad A. I. Nekrasov.

234T94

APPROVED FOR RELEASE: 06/23/11: CIA-RDP86-00513R000204400016-6

BOLOTIN, V.V.

Parametric excitation of transverse vibrations. Poper.koleb.i krit. skor. no.2:5-44 '53. (MLRA 7:4)
(Vibration) (Elastic rods and wires)

BOLOTIN, V.V.

Determination of amplitudes of transverse vibrations due to longitudinal forces. Poper.koleb.i krit.skor. no.2:45-64 '53.

(MLRA 7:4)

(Vibration) (Elastic rods and wires)

BOLOTIN, V. V.

Elasticity and Plasticity, Dynamic Problems of the Theory (1741)
Inzhenernyy Sborn, Vol 15, 1953, pp 83-88
Bolotin, V. V.
"Parametric Excitation of Obliquely Symmetrical Vibrations of Elastic Arcs"
Studies a circular arc loaded with a summetrical vibrating load, and investigates the question concerning conditions of formation of intense obliquely symmetrical vibrations.

SO: Referativnyy Zhurnal--Mekhanika, Nol, Jan 54; SO: (W-30785, 28 July 1954)

BOLOTIN, V.V.

Remarks on N.G.Bondar's article "Dynamic stability and vibration of non-hinged parabolic arches" (Inzh.sbor. 13 '52). Inzh.sbor. 17:214-215 '53. (MLRA 7:5)

(Arches) (Bondar, N.G.)

BOLOTIN, V. V.

Mathematical Reviews
Vol. 14 No. 11
December, 1953
Mechanics.

Bolotin, V. V. Integral equations of constrained torsion and of stability of thin bars. Akad. Nauk SSSR. Prikl. Mat. Meh. 17, 245–248 (1953). (Russian)

The equations

$$EI_y u^{(iv)} + (M\theta)'' = 0, \quad EI_\omega \theta^{(iv)} - GI_d \theta'' + Mu'' = 0,$$

give $u(z)$, the lateral deflection of a thin bar, and $\theta(z)$, the angle of rotation of a section, under action of a bending moment $M(z)$. The author writes $B = -EI_\omega \theta''$ and combines to get $B'' - KB = -M^2\theta/EI_y$. He then chooses a Green's function, converting the system to an integral equation, and proposes a method of finding critical loads through use of successive approximations and approximate integrations.

R. E. Gaskell (Seattle, Wash.).

Math

1

Bolotin, V. V.

USSR.

Bolotin, V. V. On bending oscillations of shafts whose sections have nonidentical principal flexural rigidities. Inžen. Sb. 19, 37–54 (1954). (Russian)

The paper concerns a shaft whose cross-section has unequal moments of inertia I_1, I_2 ($I_1 < I_2$) and therefore what the author calls a "coefficient of anisotropy"

$$\mu = \tfrac{1}{2}(I_2 - I_1)/(I_2 + I_1).$$

The shaft rotates with angular velocity θ about the horizontal line joining the end supports, and with the simplifications of the paper the sag of the mass-centre obeys the equation

$$f'' + 2\epsilon f' + \omega^2(1 - 2\mu \cos 2\theta t) + \psi(f, f', f'') = 0,$$

where $\psi(f, f', f'')$ is of the form

$$\gamma f^3 + 2\epsilon f^2 f' + 2\kappa f[ff'' + (f')^2],$$

γ being either a constant or containing a term proportional to $1 - 2\mu \cos 2\theta t$. By considering various cases including resonance ($\theta = \omega$), the author is able to obtain values and exhibit graphs which throw light on the paradoxes which arise when the equation is linearized.

L. M. Milne-Thomson (Greenwich).

BOLOTIN, V. V.; PANOVKO, Ya.G.

"Methods for the calculation of vibrations in elastic systems subjected to mobile loads." V.M. Muchnikov. Reviewed by V.V. Bolotin, IA. G. Panovko. Izv. AN SSSR Otd.tekh.nauk no.5: 153-156 My '54. (MLRA 7:11)

(Vibration) (Structures, Theory of) (Elasticity)

BOLOTIN, V.V. (Moskva).

Nonlinear problems in the dynamic strength of plates. Izv. AN SSSR Otd.tekh. nauk no.10:47-59 O '54. (MLRA 8:3)

1. Moskovskiy energeticheskiy institut.
(Elastic plates and shells) (Strength of materials)

APPROVED FOR RELEASE: 06/23/11: CIA-RDP86-00513R000204400016-6

ILLEGIBLE

APPROVED FOR RELEASE: 06/23/11: CIA-RDP86-00513R000204400016-6

ILLEGIBLE

APPROVED FOR RELEASE: 06/23/11: CIA-RDP86-00513R000204400016-6

BOLOTIN, V.V. (Moskva)

On errors in certain papers on dynamic stability. Izv.AN SSSR Otd.tekh.nauk no.11:144-147 N '55. (MIRA 9:2)
(Stability)

BOLOTIN, V.V., prefesser, dektet tekhnicheskikh nauk.

Appreximate calculatien of the vibratiens of frames. Trudy MEI no.17:7-20 '55. (MLRA 9:7)

1.Kafedra sepretivleniya materialev.
(Strength of materials)
(Structural frames--Vibration)

BOLOTIN, V.V., prefesser, dekter tekhnicheskikh nauk.

Dynamic stability ef plates. Trudy MEI ne.17:22-46 '55. (MLRA 9:7)

1.Kafedra sopretivleniya materialev.
(Elastic plates and shells)

SOV/124-57-5-6045

Translation from: Referativnyy zhurnal. Mekhanika, 1957, Nr 5, p 146 (USSR)

AUTHOR: Bolotin, V. V.

TITLE: Some Problems of the Theory of Elastic Stability (Nekotoryye problemy teorii uprugoy ustoychivosti)

PERIODICAL: Tr. 3-go Vses. matem. s"yezda. Vol I. Moscow, AN SSSR, 1956, p 200

ABSTRACT: Bibliographic entry

Card 1/1

APPROVED FOR RELEASE: 06/23/11: CIA-RDP86-00513R000204400016-6

BOLOTIN, V.V.

SUBJECT USSR/MATHEMATICS/Differential equations CARD 1/1 PG - 602
AUTHOR BOLOTIN, V.V.
TITLE The dynamic stability of elastic systems.
PERIODICAL Moscow: State publication for technical-theoretical literature 600p. (1956)
reviewed 2/1957

This book gives a good survey on the modern state of research in the domain of the time-variable claim of elastic systems. Results of research in East and West are considered in the same way. By the example of the longitudinal claimed bar the author shows to which mathematical problems this investigation leads. These mathematical theories are given in detail: Mathieu's equation and its generalizations, non-linear Mathieu's equation, starting from this, essential parts of the theory of non-linear differential equations, matrix theory, linear integral equations, calculus of variations, theory of stability for systems of non-linear differential equations, modifications under consideration of the damping.- In this representation always the connection with the problem in question is considered and parallelly the necessary theory of mechanics is developed. By examples and reviews on experimental results this representation is loosened. Already in the first two parts essential mechanic questions are treated. The third part (200 pages) treats the application to straight and curved bars, statically indetermined frames, plates and membranes. By many examples these investigations are led to numerical results. Finally an index and a detailed list of names is given.

APPROVED FOR RELEASE: 06/23/11: CIA-RDP86-00513R000204400016-6

BOLOTIN, V.V. (Moskva)

Interaction of forced and parametrically excited vibrations. Izv. AN SSSR.Otd.tekh.nauk no.4:3-15 Ap '56. (MLRA 9:8)

1. Moskovskiy energeticheskiy institut.
(Vibration)

SOV/124-57-7-8446

Translation from: Referativnyy zhurnal. Mekhanika, 1957, Nr 7, p 146 (USSR)

AUTHOR: Bolotin, V. V.

TITLE: End Strains in Flexible Conduits (Konechnyye deformatsii gibkikh truboprovodov)

PERIODICAL: Tr. Mosk. energ. in-ta, 1956, Nr 19, pp 272-291

ABSTRACT: The author examines the problem of large displacements undergone by an initially straight flexible conduit containing a fast-moving fluid. Such a conduit is liable to lose its straight-line shape in an unstable manner. The author analyzes the motion and equilibrium states of a conduit assumed to be undergoing only small displacements. Examined is the case of a conduit that is pin-jointed and is being acted upon by an axial force, the conduit undergoing lateral oscillations the damping of which obeys a linear law. Examined also are oscillations the damping of which obeys a nonlinear law. Such nonlinearity is caused by a longitudinal elastic connection and by the inertia force of the added mass due to the longitudinal displacement. The author determines the relationship that exists between the deflection of the conduit and the speed of fluid flow within it. In conclusion, a separate

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End Strains in Flexible Conduits

examination is made of the case wherein the longitudinal elastic connection has a discontinuously varying characteristics.

V. I. Feodos'yev

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BOLOTIN, V.V., (Moskva)

Motion of a fluid in a vibrating vessel. Prikl.mat.i mekh. 20 no.2:293-294 Mr-Ap '56. (MLRA 9:7)

1.Moskovskiy energeticheskiy institut.
(Hydrodynamics)

CARD 1/2 PG - 576

SUBJECT USSR/MATHEMATICS/Differential equations
AUTHOR BOLOTIN, V.V.
TITLE Problems of a general theory of elastic stability.
PERIODICAL Priklad.Mat.Mech. 20, 561-577 (1956)
Reviewed 2/1957

The author considers the elastic stability of a given state of equilibrium of an arbitrary elastic body by starting from the general equations for finite deformations. By the introduction of a Green tensor for the corresponding linear problem the consideration is reduced to the investigation of a system of linear integral equations. The introduced tensor is symmetric and positive and is, strictly speaking, a one times covariant and one times contravariant vector. Generally it is not regular as kernel of the occurring integral equations, such that singular equations of an unknown type arise. Restricting oneself to one- and two-dimensional problems (bars, plates, shells etc.) and considering the usual simplifications, then the components of this tensor as well as their first and second derivatives turn out to be continuous and Fredholm equations are obtained. Then as special cases the stability equations for bars (Trefftz, ZAMM 2, (1923)), bar systems (Nadelman, Odessa (1948)), plates (Krall, Ann. di mat.p.e.appl. 4, (1927); Garevič, Uč.zap.LGU,Mat.8, (1939)) etc. can be obtained. Then the author investigates the influence of the surface- and mass-forces on the elastic stability, and the question for those deformations which directly precede the loss of stability. For the

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actual determination of the eigenvalues the author applies the decomposition with respect to the fundamental functions of the kernels.

INSTITUTION: Moscow.

BOLOTIN, V. V.

24-6-24/24

AUTHOR: Bolotin, V. V.

TITLE: Dynamic stability of elastic systems. (Dinamicheskaya ustoychivost' uprugikh sistem). Gostekhizdat, 1956.

PERIODICAL: "Izvestiya Akademii Nauk, Otdeleniye Tekhnicheskikh Nauk" (Bulletin of the Ac.Sc., Technical Sciences Section), 1957, No.6, pp.142-144 (U.S.S.R.)

ABSTRACT: Reviewed favourably, in considerable detail, by I. I. Gol'denblat.

SUBMITTED: February 25, 1957.

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BOLOTIN, V. V.

"**Oscillations and Stability of an Elastic Cylindrical Shell in** a Flow of a Compressible Fluid," by V. V. Bolotin, Moscow Power Engineering Institute, Inzhenernyy Sbornik, Vol 24, 1957, pp 3-16

The problem of deformation of a long circular cylindrical shell, located in a flow of a nonviscous, compressible fluid, is discussed. It is assumed that the unperturbed velocity is directed along the generatrix of the shell. Simultaneously with the internal problem, the case of external flow around the shell is analyzed. The equation of intrinsic frequencies is derived and the added masses are determined. The static instability of the steady state motion is analyzed. (U)

Sum. 1374

BOLOTIN, V.V.

18(7); 25(2)

PHASE I BOOK EXPLOITATION SOV/2561

Akademiya nauk SSSR. Institut mashinovedeniya

Problemy prochnosti v mashinostroyenii, vyp. 1 (Problems of Strength in Machinery Construction, Nr. 1) Moscow, Izd-vo AN SSSR, 1958. 105 p. 3,000 copies printed.

Resp. Ed.: S.V. Serensen, Academician, Academy of Sciences, UkrSSR; Ed. of Publishing House: V.I. Mitin; Tech. Ed.: O.M. Gus'kova.

PURPOSE: This collection of articles is intended for scientific research workers and engineers concerned with problems of vibrations in revolving shafts.

COVERAGE: This collection of articles deals with vibrations in rotary motion. Topics discussed include the influence of internal friction on the vibrational stability of revolving shafts, nonlinear vibration of shafts beyond critical speeds, flexural unsteady-state vibrations of a flexible rotor with

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two equal unbalanced masses, and flexural unsteady-state vibrations of flexibly supported rotors, taking the gyroscopic effect into account. No personalities are mentioned. References follow several of the articles.

TABLE OF CONTENTS:

The author discusses the effect of internal friction and similar forces (e.g., friction between hub and shaft) on the stability of rotating shafts subjected to very small disturbances. An experimental investigation of stability is described, and the results are analyzed.

The purpose of the investigation presented in this article is to obtain general patterns for the effect

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of internal friction in rotating shafts at speeds of rotation above the critical. The author analyzes the rotation of a single-disk weightless shaft vibrating at a frequency low enough to exclude the possibility of deviation of the disk.

Gusarov, A.A. Flexural Unsteady-state Vibrations of a Flexible Rotor With Two Equal Unbalanced Masses 54

The author uses a previously obtained solution for the analysis of the transition through critical speeds of a shaft with two disks of equal weight, placed equidistant from the supports, and having differently located disbalance vectors. Two cases are discussed; 1) when the eccentricities of the disks are equal, and 2) when they are unequal. The use of the results for the dynamic balancing of flexible rotors with two equal masses is explained.

Problems of Strength in Machinery (Cont.) SOV/2561

Grobov, V.A. Unsteady-state Flexural Vibrations of Elastically Supported Rotors, Taking the Gyroscopic Effect Into Account 88

This article is an investigation of the relationship between gyroscopic effect and unsteady-state transverse vibrations of rotors with flexible shafts on elastic bearings during transition through critical speeds. Two cases are treated, one in which the elastic supports have a linear characteristic with equal or different radial rigidity, and one in which one support is rigid, the other is elastic with a nonlinear characteristic, and the coefficients of radial rigidity are the same.

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BOLOTIN, V.V.

Nonlinear vibration of shafts beyond critical whirling speeds. Probl.proch. v mashinostr. no.1:25-53 '58. (MIRA 12:4)
(Shafting) (Vibration)

BOLOTIN, V. V, Doctor of Technical Sciences, Professor.

"Investigation of the Vibrations of Shafts With Different Values of Principal Bending Stiffness"

Calculations for Strength; Theoretical and Experimental Research on the Strength of Elements Used in Machine Construction. Collection of Articles, **Vol. 2, Moscow, Mashgiz, 1958, 360pp.**

BOLOTIN, V.V.; MAREYN, N.S.; VINOKUROV, A.I.; POZNYAK, E.L.; IVOVICH, V.A.

Vibration and vibration resistance of conductors of overhead electric power lines. Nauch. dokl. vys. shkoly; energ. no.2: 55-62 '58. (MIRA 11:11)

(Electric lines--Vibration)

BOLOTIN, V.V., doktor tekhn.nauk, prof.

Stability of thin-walled spherical shells under the action of periodic pressures. Rasch.na prochn. no.2:284-289 '58.
(MIRA 12:2)

(Elastic plates and shells)

BOLOTIN, V.V., doktor tekhn.nauk, prof.

Investigating vibration of shafts with various principal bending moduli. Rasch.na prochn. no.2:302-312 '58. (MIRA 12:2)
(Shafting--Vibration)

BOLOTIN, V.V.

14(10) PHASE I BOOK EXPLOITATION SOV/1377

Raschety na prochnost'; teoreticheskiye i eksperimental'nyye issledovaniya prochnosti mashinostroitel'nykh konstruktsiy. Sbornik statey, vyp. 3. (Calculations for Strength; Theoretical and Experimental Research on the Strength of Elements Used in Machine Construction. Collection of Articles, Vol. 3) Moscow, Mashgiz, 1958. 355 p. 4,000 copies printed.

Ed.: Tarabasov, N.D., Doctor of Technical Sciences; Editorial Board: Tikhomirov, Ye.N., Honored Worker of the RSFSR in Science and Technology, Professor (Chairman); Serensen, S.V., Active Member, Ukrainian SSR Academy of Sciences, Doctor of Technical Sciences, Professor; Glushkov, G.S., Doctor of Technical Sciences, Professor; Ponomarev, S.D., Doctor of Technical Sciences, Professor; Sokolov, S.N., Doctor of Technical Sciences, Professor; Tarabasov, N.D., Doctor of Technical Sciences, Professor; and Makushin, V.M., Candidate of Technical Sciences, Docent (Secretary); Tech. Ed.: Tikhanov, A.Ya.; Managing Ed. for Literature on General Technical and Transport Machine Building (Mashgiz): Ponomareva, K.A., Engineer.

PURPOSE: This collection of articles is intended for engineers and designers working in the field of machine construction, for research fellows, and scientific workers.

COVERAGE: The collection is an inter-vus publication of transactions concerning strength problems. It contains original reports on calculations for a number of structures used in machine building and their components. Considerations are given to calculations of the columns of hydraulic presses, the nonlinear theory of spiral springs, problems in the calculation of rubber components, theoretical and experimental investigations of circular plates of constant and variable stiffness, investigations of conical shells and of stressed assemblies of machine components. Calculations in the elasto-plastic domain are represented by an investigation of forced fits of discs and the creep of operating turbine blades. Problems of contact in the case of impact and the stability theory of elastic systems "in general terms" are considered. There are 114 references, 99 of which are Soviet, 9 English, 4 German, 1 French, 1 Polish.

Makhonina, T.M., Engineer. Analysis of Forced Fits of Discs ...

Bolotin, V.V., Doctor of Technical Sciences, Professor. Nonlinear Theory of Elasticity and Stability "in General Terms" (v bol'shom) 310

... CALCULATIONS AND CALCULATIONS FOR STABILITY

Tikhomirov, Ye.N., Honored Scientific and Technical Worker of the Russian Socialist Federated Soviet Republic, Professor. ...

Bolotin, V.V., Doctor of Technical Sciences, Professor. Nonlin...

24(5) SOV/159-58-3-4/31

AUTHOR: Bolotin, V.V.

TITLE: The Critical Velocities in Nonlinear Problems of the Theory of Aeroelasticity

PERIODICAL: Nauchnyye doklady vysshey shkoly. Mashinostroyeniye i priborostroyeniye, 1958, Nr 3, pp 25-29 (USSR)

ABSTRACT: When investigating the stability of elastic bodies in a gas flow at high supersonic velocities it is necessary to consider the aerodynamic nonlinearity. In a number of problems of the theory of aeroelasticity the critical velocities which are to be determined from the linearized theory have the meaning of "upper" critical velocities. Together with them, the "lower" critical velocities become significant and also critical velocities found under consideration of the disturbances acting on the system. The basic problem of the theory of aeroelasticity is the determination of the motion velocities of an elastic system in a gas flow at which the initial type of deformation ceases being stable (critical velocities of flutter or diver-

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gence). Thereby the problem is always linearized which means that the stability is considered in regard to small disturbances. Actually, aerodynamic and also internal forces acting on a system have a non-linear character. Therecreates two new problems. The first task consists in determining the deformation of the system arising after the stability was lost which means the oscillation amplitude during flutter or static deformations during divergences. The other, not less important task, includes the investigation of the stability of the initial deformation type in regard to sufficiently large disturbances. In this article, the author shows that under certain conditions, the critical velocities obtained from the analysis of linear equations are only the "upper" critical velocities, similar to the "upper" critical stresses in tasks of the static stability of elastic shells. Recently, problems of the stability of wings, plates and shells located in a flow of high supersonic velocities caused great attention. The analysis of these problems was essentially simplified, because of the simple dependence between the gas pressure on a body and the velocity of gas particles at a given point as formulated by A.A. Il'yushin (1956). At sufficiently large M numbers and sufficiently small - compared to the motion velocity of a body U - transverse velocity components v the gas pressure p may be determined, starting from the assumption that the gas particles move in planes perpendicular to the motion direction of the body. In other words, the gas pressure in some point of the body surface is shown equal to the pressure on the piston of a semi-finite tube, if this piston performs a motion with the velocity v

$$\frac{p}{p_1} = \left(1 + \frac{\varkappa - 1}{2}\,\frac{v}{a_1}\right)^{\frac{2\varkappa}{\varkappa - 1}}$$

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The Critical Velocities in Nonlinear Problems of the Theory of Aeroelasticity

whereby x - is the ratio of specific heat capacities, p_1 and a_1 - are pressure and velocity of sound. They are either calculated for an undisturbed gas (if the pressure p is determined in front of the rarefaction wave), or a gas located in front of a shock wave. In a linear approximation in regard to v/a, the aforementioned formula will have the following appearance

$$\frac{p}{p_\infty} = 1 + \frac{xv}{a_\infty}$$

whereby p_∞ and a_∞ are the parameters of the undisturbed gas. This formula was used as the basis of a number of papers published on aeroelasticity at high supersonic velocities (by Movchan 1956, and Stepanov 1957). The author uses two examples for demonstrating his opinion mentioning in this connection the work of

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